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A dual-band CP dual-orthogonal arms monopole antenna with slanting edge DGS for C-band wireless applications

Tejpal[#1], Vivekanand Tiwari[#2], Deepak Bhatnagar[*3], Dinesh Yadav[#4], Sanyog Rawat[#5]

[#]Department of Electronics & Communication Engineering, Manipal University Jaipur, Rajasthan, India, (e-mail: [1]tej.pal@jaipur.manipal.edu, [2]vivekanand.tiwari@jaipur.manipal.edu, [4]Dinesh.yadav@jaipur.manipal.edu, [5]sanyog.rawat@jaipur.manipal.edu)

*Microwave Lab, Department of Physics, University of Rajasthan, Jaipur, India (e-mail: [3]dbhatnagar2010@gmail.com).

Abstract— This communication describes a novel design of circularly-polarized (CP) monopole antenna for dual-band performance. The proposed design offers an impedance bandwidth (IBW) of 3.7 GHz in the frequency range 2.9 to 6.6 GHz in the lower band and 1 GHz (7.7 to 8.7 GHz) in the upper band. Proposed antenna has a wide CP (3dB axial-ratio) bandwidth of 2.42 GHz (46.6%) in lower band (4.08 to 6.5 GHz) and 300 MHz in upper frequency band (8.1 to 8.4 GHz). The CP bandwidth is achieved through dual orthogonal arms and slanting edge defected ground structure (DGS). Proposed antenna is suitable for the C-Band wireless applications including WLAN, Wi-MAX communication systems.

Index Terms— Wideband, Circularly Polarized, Defected Ground Structure, Axial Ratio.

I. INTRODUCTION

Now a days, wireless and space communication fields are rapidly growing. In recent years, for high data rate wireless applications, antennas having wide bandwidth are quite prevalent. Lot of research work has been done on printed antennas because on mass production they are low in cost, have low profile structure and their fabrication is easy. In wireless communication systems, the CP antennas are very favorable for installation in a receiver and a transmitter, because they permit polarization misalliance between them, better mobility, reduction in multipath reflections,